IMPLEMENTATION OF A MENOPAUSE TOOLKIT AT AN OBSTETRICS AND GYNECOLOGY CLINIC

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Dedication

This project is dedicated to my parents, who have provided me with unconditional support throughout the many years of study so that I may achieve my dreams. Without you both, I would not have realized my potential to succeed and be the person I am today. For this, I am eternally grateful.

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Abstract

Menopause is caused by depletion of estrogen levels leading to the cessation of menses. Although this is a natural process, it can involve problematic symptoms in women such as hot flashes and atrophic vaginitis. Studies have found that problematic symptoms of menopause are often misreported to providers, leading to lower quality of life and increased risk for other health conditions. The purpose of this evidence-based practice project was to create a standardized protocol to address problematic symptoms of menopause at Stellar Woman's Health Specialists in Wailuku, Maui. The Endocrine Society's Menopause Map™ provides screening and educational materials related to menopause; a questionnaire, algorithm, and patient education magazine were adapted and implemented to stage menopausal status for women 40 to 65 years presenting for annual well woman examinations. De-identified data was collected from surveys completed by patients and the electronic medical record [EMR], and the relationship between menopausal status, ethnicity, and symptoms in the target population were assessed. Results indicated that women may have problematic symptoms that may not be identified by the previous approach of verbal inquiry used in the practice, and that a visual format to screen for symptoms may be beneficial for both patients and providers in the women's health clinic setting.

Keywords: Menopause, screening, symptoms, women's health, evidence-based practice, menopause toolkit, and quality improvement

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Implementation of a Menopause Toolkit at an Obstetrics and Gynecology Clinic

Menopause is defined as the cessation of menses for 12 consecutive months, but symptoms usually begin several years prior to diagnosis and can extend well into and past menopause (AMCOG, 2011; Bacon, 2017). All women who live past the age of 50 years are predicted to go through the menopausal transition, a time when estrogen levels deplete and affect physiological changes such as cessation of menses and loss of fertility. An estimated 6,000 women in the United States [U.S.] reach menopause every day, with an average age of onset of 51 years (American Congress of Obstetricians and Gynecologists [AMCOG], 2011). By 2020, it is estimated that roughly 46 million women will be over the age of 55 years (AMCOG, 2011). Half of all women who reach 50 years of age are predicted to live until the age of 80 years, resulting in women spending at least a third of their lives in menopause (AMCOG, 2011). In addition, women aged 45 to 65 years represent the largest and fastest growing population in the U.S. (Silvestrin et al., 2016).

A national poll conducted by Lake Research Partners commissioned by The Endocrine Society found that, in a sample of 810 women ages 45 to 60 years, 70% of those who suffer from symptoms of menopause are not treated (Chase, 2012). Symptoms of menopause such as hot flashes, irregular menses, vaginal atrophy, anxiety, depression, and altered sleep patterns can negatively impact quality of life and are treatable (Ayers, Forshaw, & Hunter, 2010; Bromberg et al., 2010; Sarri, Pedder, Dias, Guo, & Lumsden, 2017; Zambotti, Colrain, Javitz, & Baker, 2014). Ethnicity has been found to play a role in patients' self-report of these problematic symptoms (Gold et al., 2006; Grisso et al., 1999; Harlow, Crawford, Sommer, & Greendale, 2000; Sievert, Morrison, Brown, & Reza, 2007). Furthermore, it is important that clinicians be aware of and screen women for potential problematic symptoms related to menopause during annual visits as

healthcare needs related to menopausal symptoms of middle-aged women can sometimes be under-prioritized, overlooked, and undertreated (Silvestrin et al., 2016).

Description of Problem

The problem-focused triggers identified for this project included: 1) a shortage of obstetric-gynecologic providers in the medically underserved, rural population in Wailuku on the island of Maui; 2) lack of time to address all patient needs due to the high volume of patients presenting to the clinic on a daily basis; 3) low health literacy of patients regarding changes associated with menopause; and 4) no standardized evidence-based tool to assess patients presenting for problematic symptoms of menopause at Stellar Women's Health Specialists [SWHS]. At SWHS, about 25 women over the age of 40 years present for annual well woman examinations per week. Of those women, roughly 40% report symptoms of menopause (C. Adrian, personal communication, November 25, 2017). Most women tend to designate themselves as going through menopause based on physical symptoms, such as complaints of hot flashes or irregular, unpredictable menses. However, other factors including culture, education level, and socioeconomic status have also been found to play a role in the perception of menopause (Freeman & Sherif, 2007; Harlow, Crawford, Sommer, & Greendale, 2000). Cultural and ethnic variations in self report of symptoms have been documented in African American women and Caucasian-American women, who consistently report more severe and frequent symptoms (Gold et al., 2006; Grisso et al., 1999; Sievert, Morrison, Brown, & Reza, 2007; Thurston & Joffe, 2011; Xu et al., 2005). Women of Asian ethnicity tend to report less severe and fewer problematic symptoms of menopause (Gold et al., 2006; Grisso et al., 1999; Sievert, Morrison, Brown, & Reza, 2007; Thurston & Joffe, 2011; Xu et al., 2005). In Hilo, Hawaii, Japanese-American women also reported fewer vasomotor symptoms including hot flashes and

night sweats compared to European-American women (Sievert et al., 2007). In a study of women experiencing menopause, only two-thirds of the women who identified symptoms of menopause reported engaging in discussions with their clinicians about the presence of these (Hampson & Hibbard, 1996). Often, women can view menopause as a stigmatizing condition and tend to perceive other women, including female clinicians, as having more negative views regarding menopause than they themselves do (Hampson & Hibbard, 1996). Moreover, patient-provider age and communication differences can interfere with appropriate assessment of symptoms. In the Wailuku, Maui clinic, where this project was conducted, it was identified that verbal inquiry of symptoms of menopause may represent a barrier for obtaining information related to problematic symptoms of menopause, and a visual format for addressing menopause symptoms could promote reporting because it allows the patient to write in her concerns (C. Adrian, personal communication, December 5, 2017). This was due to the culturally and ethnically unique and diverse population of individuals in Maui County, who may read and speak English as a second language. Therefore, a review of the current evidence was conducted to find a menopause symptom screening tool to improve the identification of women experiencing symptoms of menopause at SWHS.

Review of Literature

Search Strategy

An electronic search was completed using the following databases: PubMed, MEDLINE, EBSCOhost, and ProQuest. Key terms searched included “menopause,” “symptom,” “report,” “symptom report,” “management,” “quality of life,” “hot flashes,” “vasomotor symptoms,” “vaginal atrophy,” “attitude,” “ethnicity,” and “culture.” Searches were limited to English language, women only, between ages 40-65. A total of 65 articles were examined and 27

articles from 1996 to 2017 were chosen based on study design, date published, location of the study, and relevance of results pertaining to this EBP project. The 27 articles selected were individually critiqued for strength of evidence and grading of the evidence using Mosby's Quality of Evidence (Melnyk & Fineout-Overholt, 2011; see Appendix A). The 27 publications reviewed and used in the literature synthesis are found in Appendix B. Publications were critiqued using Mosby's Research Critique Form (2017), and The Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument was used to evaluate the Clinical Practice Guidelines [CPGs] (Brouwers et al., 2010).

Quality, Quantity, and Consistency of Evidence

Several themes were identified in the literature, including: 1) the impact of menopause on health; 2) report of menopausal symptoms; 3) variations in symptom report; 4) clinics in underserved populations; 5) patient-provider interactions; 6) education of menopause; and 7) management of symptoms. Further explanation of each theme and its rationale to support this DNP project is found in Appendix C. Due to the subjective nature of self-report of symptoms, primarily qualitative studies were reviewed. The publications were consistent in concluding that ethnicity, socioeconomic status, and health literacy were some of the factors that influence report of menopausal symptoms and severity. Additionally, quality of life was also negatively impacted by menopausal status, with hot flashes and vaginal symptoms being the most frequently reported problems.

Because menopausal symptoms are based on self-report, limitations and weaknesses within the studies reviewed included: 1) inaccurate reporting of symptoms by subjects; 2) inaccurate perception of symptoms; and 3) language barriers. One weakness that was identified was that not all participants initially recruited to the various cross-sectional studies answered the

questionnaires. Another weakness identified was that questionnaires were not standardized across the studies, and the questionnaires may have lacked reliability or validity. However, the majority of the studies found similar results and conclusions.

Application to DNP Project

Menopausal symptoms have been well-documented in the literature, as a result numerous cross-sectional and cohort studies on the cultural differences in symptom reporting were identified during the literature search and review. Clinical practice guidelines [CPGs] have also identified that there are cultural differences in reporting, but do not further explore the issue and only attempt to provide treatment guidelines (ACOG, 2014). Treatment of menopausal symptoms should be individualized and tailored to the patient's specific symptoms, but due to misreporting of symptoms in clinics, they can often go unaddressed (Hooker, 2013; Silvestrin et al., 2016). This DNP project served to address disparities in the self-report of problematic symptoms of menopause by participants in order to increase screening for menopausal status. The Hormone Health Network's Menopause Map™ is an evidence-based program and public education affiliate of the Endocrine Society that promotes the identification and education of menopause (Anderson, 2017; The Hormone Health Network, 2014) and was a tool that was used for this project.

Conceptual Framework

The conceptual framework utilized was the Iowa Model Revised: Evidence-Based Practice to Promote Quality Care (Iowa Model Revised) (Iowa Model Collaborative, 2017) (refer to Appendix D). This model links practice changes within the system and emphasizes collaboration and teamwork. It applies current scientific evidence to achieve the final outcome of implementing, integrating, and sustaining an evidence-based practice [EBP] change based on a

problem-focused or knowledge-focused trigger (Iowa Model Collaborative, 2017). The goals of the Iowa Model Revised are to evaluate and monitor an EBP practice change to improve the quality of care and health outcomes of patients as well as promote its sustainability within an organization. The Iowa Model Revised has been applied to this project through the identification of triggers, validation of the need for a practice change by the clinic, formation of a team, and review of the evidence as described above using the Hormone Health Network's Menopause Map™ (2014). The practice change was then designed and piloted as described in the following sections of this DNP project.

PICO Question

At Stellar Women's Health Specialists (SWHS), how effective is the implementation of a menopause protocol (I) at increasing patient self-report, provider screening, and treatment of problematic menopausal symptoms (O) in women presenting for well woman examinations (P) compared to the current practice of verbal inquiry (C)?

Purpose, Goals, and Aims

The purpose of this Doctor of Nursing Practice [DNP] project was to increase screening of symptoms related to menopause in women aged 40 to 65 presenting for well woman examinations at SWHS. The goal of this EBP project was that by the end of December 2018, 80% of women presenting for annual well woman examinations would participate in an adapted form of The Endocrine Society's "Menopause Map™" protocol to increase screening for problematic symptoms of menopause. The aim of this DNP project was to address disparities of symptomatic self-report of menopause by participants in order to increase screening of menopausal status. A logic model of activities can be found in Appendix H and process and outcome measures for the objective can be found in Appendix J.

Methods and Procedure

Setting

The project was implemented at an outpatient women's health clinic, the SWHS in Wailuku, Maui. This clinic provides outpatient care for women across the lifespan and during pregnancy. It is a full scope obstetrics and gynecology [OBGYN] practice with four patient examination rooms. During the project's implementation, three providers and twelve staff were employed at the clinic. Of the providers, the owner of the practice was an OBGYN who employed two Advanced Practice Registered Nurses [APRNs]. Of the APRNs, one was a women's health specialist and midwife, and the second was an APRN who was practicing for the first time. The remainder of the staff were primarily part-time nursing students; and staff turnover was a factor due to the number of nursing students that were employed during their program and had clinical rotation obligations to meet. There were two full-time staff members who remained working at the clinic during the project's implementation timeframe.

Sample

The target population for this project included patients between 40 to 65 years seen for annual examinations during the pilot project's piloting implementation phase between September and December of 2018. Inclusion criteria consisted of the following: being an established patient at the clinic, age 40 to 65 years, and presenting for an annual well woman examination. Exclusion criteria consisted of new patients and patients being seen for other problematic symptoms or for pregnancy visits.

Project Design

As noted previously, the project utilized the Iowa Model Revised: Evidence-Based Practice to Promote Quality Care [Iowa Model Revised] (Iowa Model Collaborative, 2017)

(Appendix D). The EBP process includes thorough use of current research, clinical expertise, and patient values to guide healthcare decisions (Titler, 2001). The purpose of EBP is to improve the quality of care within a clinical setting by applying evidence to healthcare decision-making and measures knowledge, attitudes, behaviors, practices, and outcomes (Harris Health System, n.d.). Advantages of EBP are that the patient is expected to directly benefit from an improved process. In a study by Anderson (2017), an adapted procedure of the Endocrine Society's Menopause Map™ assessment and education materials was previously utilized with documented success to increase menopause symptom report and is further discussed below in Data Collection Procedures (Anderson, 2017).

Sampling Plan

The sampling plan design selected for this EBP project was convenience, cross-sectional, non-probability sampling. Baseline data were attempted to be extracted from the electronic medical record [EMR], but there was not a consistent way to collect data on menopausal status because this was the first time a menopause protocol had been implemented at this site. Inclusion criteria for participants were all established female patients aged 40 to 65 years who were presenting for annual well woman examinations. Exclusion criteria were patients presenting for obstetrical checks, new patients, and women presenting for other issues at the clinic.

Data Collection Procedures

The project was implemented between the months of September to December of 2018. A Gantt chart is provided as a visual overview of the project timeline (See Appendix G). The procedures for implementing and evaluating the project are presented in Appendix I.

The Hormone Health Network's Menopause Map™ (2014) website consists of an online interactive questionnaire to stage an individual's menopausal status and free informational

resources for patients and providers. Additionally, clinicians may order free copies of the "Menopause Map™ – My Personal Path" patient resource guide magazine as an alternative to the online resources (2014). It was determined that online questionnaire administration was not feasible to implement in this particular setting due to lack of computer resources. In a previous study, adapted visual formats of the Menopause Map™ questionnaire and algorithm were created and utilized with success (Anderson, 2017). The questionnaire and algorithm created and used by Anderson (2017) was further adapted by the DNP student to meet the goals and objectives of this project (see Appendix E and Appendix F for the questionnaire and algorithm).

Prior to implementation, 200 patient education magazines were ordered from The Hormone Health Network at no cost to the clinic (2014). A staff education booklet consisting of the questionnaire, algorithm, and a copy of the patient education magazine was also created and provided to each employee at the clinic. An educational session was conducted on August 31st, 2018 for the three providers and three staff members who were able to attend. The session included a PowerPoint that explained the purpose, goals, target population, and implementation procedures of the protocol. Staff members who were unable to attend the August session were provided informal verbal education by the DNP student about why the project was important and how to utilize the questionnaire and algorithm. Staff were asked weekly via verbal inquiry if there were any suggestions to improve the practice change.

Prior to patient visits each week, the DNP student reviewed the appointments scheduled in the EMR. For each patient scheduled for an annual examination that fit the criteria for this project, a note was created in the EMR that stated: "Please do menopause survey." These notes served as reminders for staff to promote compliance of the protocol. The protocol process included: (1) patient receiving the menopause survey from a staff member upon arrival; (2) staff

member identifying the individual's stage of menopause using the questionnaire answers and algorithm; (3) staff member providing patient education material in the form of a magazine describing the stages of menopause, symptoms, treatments, resources, and reviewing the stage of menopause with the patient; (4) staff member directing the patient to the appropriate section in the patient education magazine corresponding to the patient's menopausal status; (5) the provider discussing symptoms and treatment options with the patient based on answers from the questionnaire; and (6) the provider documenting survey completion and menopausal status in the EMR.

After a patient filled out the paper questionnaire, the algorithm was then utilized by staff to stage menopausal status. Once menopausal status was determined, a number was assigned to the stage in the according manner: Not in menopause = 1; Perimenopause = 2; Menopause = 3; Postmenopause = 4. This number was then written on the surveys as well as entered in the EMR based on the individual providers' documentation method. Once the provider finished with a questionnaire, the survey was then placed in a folder for later analysis for this project. Patient names were removed from each survey and assigned a number according to their number in the EMR. The data were then analyzed using run charts to track weekly compliance to the protocol. Demographic information including age and ethnicity were extracted from the survey. The survey also requested information about last menstrual period and birth control methods in addition to symptoms reported.

Human Subjects Consideration

The project did not require IRB application or approval because it was a quality improvement project (i.e., not a research project), the sample was not considered a high-risk population, and the intervention did not put the sample patients at risk of harm but rather focused

on improving patient care. Informed consent was obtained by the participant's acceptance of answering the questionnaire prior to their annual well woman examination. The participant's right of autonomy was protected by allowing the participant to choose whether or not she wished to answer the questionnaire (see Appendix E). Participant's rights of confidentiality, privacy, and anonymity were also protected by only including de-identified answers to the questionnaire in the final analysis.

Results

The results of this study revealed that implementing a menopause questionnaire, algorithm, and patient education brochure at SWHS was effective at increasing patient self-report, provider screening, and treatment of problematic menopausal symptoms in women presenting for well woman examinations compared to the prior practice of verbal inquiry. A total of 260 annual examinations were completed at SWHS between September 1st and December 31st of 2018. Of those annual examinations, 135 met the inclusion criteria. Compliance for use of the survey and menopause information brochure was analyzed from weekly EMR data and survey count using run chart analysis as seen in Figure 1, but compliance was only able to be tracked until December 4th, 2018 due to unforeseen circumstances and lack of patients meeting the inclusion criteria for this study. Retrospective chart analysis found that 99 patients received the survey and a total of 94 surveys with responses were collected. Of the 94 surveys that were collected, menopausal status, ethnicity, and symptoms reported were analyzed and are shown in tables 1 through 3.

Analysis of the surveys found that 31 participants reported they were of Caucasian ethnicity (33%), 16 were of Filipino ethnicity (17%), 14 were of Asian (Japanese or Vietnamese) ethnicity (15%), 1 was of African American ethnicity (1%), 3 were of Portuguese ethnicity (3%),

15 were of two or more ethnicities (16%), and 14 declined to answer (15%). Table 1 shows the relationship between ethnicity and menopausal status by percentages.

Among the 31 Caucasians, 8 were not in menopause (26%), 5 were in perimenopause (16%), 4 were in menopause (13%), and 14 were postmenopausal (45%). Among the 16 Filipinos, 1 was not in menopause (6%), 7 were perimenopausal (44%), 0 were in menopause (0%), and 8 were postmenopausal (50%). Of the 14 Asians, 7 were not in menopause (50%), 1 was in perimenopause (7%), 1 was in menopause (7%), and 5 were post-menopausal (36%). The one African American individual was postmenopausal. Of the Portuguese identified patients, 1 was perimenopausal (33%), and 2 were postmenopausal (67%). Of the 15 individuals identifying as 'other' or two or more ethnicities, 5 were not in menopause (33%), 5 were perimenopausal (33%), and 5 were postmenopausal (33%). Of the 14 individuals who declined to answer, 2 were not in menopause (14%), 6 were perimenopausal (43%), and 6 were postmenopausal (43%). Overall, the responses for all of the women indicated that the majority of the respondents were menopausal or perimenopausal, but symptoms of menopause had not been identified by the previous approach of verbal inquiry at SWHS.

Symptoms were analyzed and categorized based on menopausal status as shown in table 2. A total of 23 women were not in menopause (24%), 25 were perimenopausal (27%), 5 were menopausal (5%), and 41 were postmenopausal (44%). The most commonly reported symptom in patients who were not diagnosed as being menopausal was irregular menses (22%) and sleep disturbances/insomnia (28%). However, these patients noted on their surveys that they were either on a form of birth control or were breastfeeding, which may explain the report of irregular menses. It was also noted that sleep disturbances were probably due to having young children who needed care at night.

The most common symptoms reported by patients who were perimenopausal were mood changes (18%), sleep disturbances (14%), irregular menses (13%), night sweats (12%), and hot flashes (13%). In the menopausal group, the most commonly reported symptoms were hot flashes (24%) and vaginal dryness or discomfort during intercourse (18%). In the postmenopausal group, the most commonly reported symptoms were sleep disturbances (19%), vaginal dryness or discomfort during intercourse (18%), memory or concentration problems (13%), skin changes (13%), and hot flashes (12%). Overall, the perimenopausal and postmenopausal groups reported the most problematic symptoms related to menopause.

The symptoms reported by the women were analyzed and categorized based on ethnicity as seen in Table 3. The three most commonly reported symptoms of the Caucasian group were hot flashes (13%), sleep disturbances or insomnia (21%), and vaginal dryness/discomfort during intercourse (13%). The three most commonly reported symptoms of the Filipino group were night sweats (16%), mood changes (19%), and vaginal dryness or discomfort during intercourse (19%). Of the Asian group, the most commonly reported symptoms was vaginal dryness or discomfort during intercourse (20%), followed by hot flashes (12%), sleep disturbances or insomnia (12%), and urinary problems (8%). The African American individual noted the only problematic symptom was vaginal dryness. The Portuguese group's most commonly reported symptom was sleep disturbances or insomnia (22%). The group identifying as other or two or more ethnicities reported mood changes (19%), sleep disturbances or insomnia (15%), and memory or concentration problems (15%) as the most common problematic symptoms. Of the group who declined to answer their ethnicity, mood changes (20%), sleep disturbances (17%), and memory or concentration problems (17%) were also the most commonly reported symptoms.

The retrospective chart review revealed that all of the patients' concerns were addressed,

particularly atrophic vaginitis and hot flashes. Specifically, patients reporting vaginal dryness or discomfort during intercourse were offered either Premarin or Estrace cream by their provider, and patients reporting hot flashes or night sweats were offered Venlafaxine. All of these treatments were in alignment with current standards of care for peri- and post-menopausal women.

Limitations

There were limitations that were identified prior to and during implementation of this project. The scope of the project was small and limited to one OBGYN clinic in a rural and ethnically unique population in Wailuku, Maui. Therefore, this study is only generalizable to the rural, ethnically diverse population of Maui County.

The time frame for this pilot project implementation was also short, about three months. At the start of the project's implementation, a new EMR was introduced, which created some difficulty in determining where and how to best document the menopausal status of patients. However, as staff and providers became more oriented to the EMR system as well as the project, documentation improved. The style of documentation depended on the individual providers' method of charting in the EMR but were relatively consistent (e.g., some providers documentation included statements such as "Discussed perimenopausal symptoms. H/o irregular menses. Menopause magazine sent home with patient" or "Discussed ways to manage perimenopausal symptoms including lifestyle changes, behavior modification, OCPs, HRT, and other medications. Patient states "I do not want any" Patient will discuss possibility of switching sertraline for venlafaxine with her psychiatrist to help manage hot flashes. Gave menopause magazine"). Furthermore, providers inputted patients' menopausal status into the EMR after it

was coded with the algorithm due to their use of the questionnaire to address patient concerns during the annual examination visit.

A staff reminder was created to promote utilization of the protocol by reviewing the appointments scheduled in the EMR the week prior to the visits and documenting a request in the intake note of patients meeting inclusion criteria to "please complete the menopause survey." However, at times, new appointments were scheduled, rescheduled, or canceled following the reminder inputs either due to the patient's wishes or because the clinic was not open on the day they were scheduled for the appointment. This may have led to some patients who met the criteria not receiving the screening per protocol if they had a new appointment scheduled, or perhaps had been missed when rescheduling their appointment to another date.

Towards the end of the project's implementation timeframe, patient visits reduced significantly due to the clinic's closure at the end of December. Therefore, fewer patients who fit the criteria for the project were seen. The reduced number of patients also could have contributed to staff members forgetting to provide the questionnaire to patients, resulting in lower compliance rates with the protocol.

Some patients reported memory or concentration problems, mood changes, or sleep disturbances on the questionnaire but were not designated as being in menopause. This occurred when the patient noted on survey that they were experiencing these symptoms because they had a small child that needed care at night, or that the patient was undergoing a lot of stress in their lives. In addition, some patients were using a form of birth control (e.g., intrauterine device, pills, or depoprogesterone), which may have accounted for some reports of irregular menses in women who were designated as either being not in menopause or perimenopausal. Some women were

also breastfeeding, which could account for the report of irregular menses in women who were not menopausal.

Discussion/Conclusion

Symptoms of menopause such as irregular menses, hot flashes, anxiety, depression, vaginal atrophy, and altered sleep patterns can negatively impact quality of life and are treatable (Ayers, Forshaw, & Hunter, 2010; Bromberg et al., 2010; Sarri, Pedder, Dias, Guo, & Lumsden, 2017; Zambotti, Colrain, Javitz, & Baker, 2014). However, symptoms of menopause by patients are frequently underreported (Chase, 2012). It is important for clinicians to be aware of and screen women for problematic symptoms related to menopause during annual well woman examinations (Silvestrin et al., 2016). The PICO question aimed to determine the efficacy of implementing a menopause protocol that included a questionnaire for patient's self-report of symptoms, increasing provider screening, and assisting with determining appropriate treatment for women with problematic symptoms of menopause compared to the previous practice of verbal inquiry about menopausal symptoms. Results showed that this project facilitated patient self-report of symptoms through a questionnaire. In addition, patients received education and assessment of their symptoms and staging of menopausal status using an algorithm, discussion about their symptoms with the provider, and provision of a patient educational magazine addressing menopause. Results also found that the majority of women that responded to the questionnaire were menopausal or perimenopausal, which is reasonable considering the target population's age range of 40 to 65 years.

The implementation of this EBP project met and exceeded the goal of 80% increased screening of menopausal symptoms for women aged 40 to 65 years presenting for annual well woman examinations at the SWHS practice. Prior to the implementation of this project, there

was no structured method for screening women for menopausal symptoms at SWHS. This was the first time that the clinic implemented a health screening questionnaire. This project also provided information to women regarding their menopausal status with the use of the adapted questionnaire from the Hormone Health Network's Menopause Map™ and Menopause Map magazine patient information brochure. By facilitating self-report of menopausal symptoms via a questionnaire that patients completed, rather than relying on a verbal report, symptoms related to the menopausal transition were identified and addressed. EMR chart review indicated that patients received counseling and treatment from providers for symptoms such as hot flashes and atrophic vaginitis, Providers and staff expressed that they were satisfied with the protocol that was implemented and noted that it was easy to use and did not interfere with the time needed to see patients once it was fully integrated. This project validates findings from a previous quality improvement project by Anderson (2017), and serves to provide support for the use of a standardized protocol to address perimenopausal and menopausal symptoms of women ages 40 to 65 years presenting for annual well woman examinations at this OBGYN clinic. However, the project's findings are specific to the patient population of SWHS and cannot be applied to other practices due to the unique demographics of the SWHS patient population and its rural setting.

This EBP project met the DNP Essentials of Doctoral Education for Advanced Nursing Practice by integrating nursing science with psychosocial, ethical, biophysical, and analytical sciences in order to promote advanced strategies for the delivery of health care and outcomes (American Association of Colleges of Nursing, 2006). Further information on how this project met each of the DNP Essentials can be found in table 4.

This was an exploratory study intended to promote patient self-report of symptoms, provider screening, and treatment of problematic symptoms of menopause. Despite the lack of

generalizability to other populations, the findings from this project suggest that implementing a visual format via a questionnaire and patient education magazine may be more effective than the practice of verbal inquiry of problematic symptoms. This could lead to future research on how providers can better communicate and improve overall quality of life in women going through the menopausal transition by addressing and treating their reported problems.

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Table 1. Percentage of Menopausal Status and Ethnicity

Ethnicity	**Menopausal status**			
	Not in menopause	Perimenopause	Menopause	Postmenopause
Caucasian	26%	16%	13%	45%
Filipino	6%	44%	0%	50%
Asian*	50%	7%	7%	36%
African American	0%	0%	0%	100%
Portuguese	0%	33%	0%	67%
Other/>2**	33%	33%	0%	33%
Declined to Answer	14%	43%	0%	43%

*Japanese or Vietnamese

**Denotes greater than two ethnicities reported by participant

Table 2. Percentages of Symptoms Reported and Menopausal Status

Symptoms reported	**Menopausal status**			
	Not in menopause	Perimenopause	Menopause	Postmenopause
Irregular menses	22%	13%	0%	0%
Hot flashes	0%	10%	24%	12%
Night sweats	6%	12%	12%	7%
Elevated heart rate	6%	6%	6%	1%
Sleep disturbances or insomnia	28%	14%	12%	19%
Memory or concentration problems	6%	11%	12%	13%
Mood changes (irritability, anxiety, or depression)	11%	18%	6%	11%
Vaginal dryness or discomfort during intercourse	11%	7%	18%	18%
Urinary problems	6%	3%	6%	6%
Skin changes	6%	6%	6%	13%

Table 3. Percentages of Symptoms Reported and Ethnicity

Symptoms reported	**Ethnicity**						
	Caucasian	Filipino	Asian*	African American	Portuguese	Other / >2**	Declined to Answer
Irregular menses	5%	11%	8%	0%	11%	13%	5%
Hot flashes	13%	8%	12%	0%	11%	10%	10%
Night sweats	10%	16%	8%	0%	11%	6%	5%
Elevated heart rate	2%	5%	4%	0%	11%	4%	2%
Sleep disturbances or insomnia	21%	11%	12%	0%	22%	15%	17%
Memory or concentration problems	12%	5%	8%	0%	11%	15%	17%
Mood changes (irritability, anxiety, or depression)	10%	19%	8%	0%	11%	19%	20%
Vaginal dryness or discomfort during intercourse	13%	19%	20%	100%	0%	10%	7%
Urinary problems	7%	0%	8%	0%	0%	2%	5%
Skin changes	7%	5%	12%	0%	11%	6%	12%

*Japanese or Vietnamese

**Denotes greater than two ethnicities reported by participant

Table 4. DNP Student's Activities/Products based on the American Association of Colleges of Nursing Essentials of Doctoral Education in Advanced Nursing Practice (2006)

DNP Essential	DNP Student's Activities/Products
Essential 1: Scientific Underpinnings for Practice	• Completion of courses that integrate the science of nursing with ethical, psychosocial, biophysical, and science-based theories to develop and evaluate a new practice approach based on theories of nursing for this project.
Essential 2: Organizational and Systems Leadership for Quality Improvement and Systems Thinking	• Developed and evaluated approaches to delivery of care to meet the needs of the target population of this EBP project by ensuring accountability for quality of health care delivery, using advanced communication skills, and demonstrating cultural sensitivity.
Essential 3: Clinical Scholarship and Analytical Methods for Evidence-Based Practice	• Utilized analytical methods to evaluate and appraise the literature to create a review of literature section for this DNP project. Collected and analyzed data to examine patterns of outcomes and identify gaps in evidence. • Designed, directed, and evaluated quality improvement methods in order to promote safe and efficient delivery of patient-centered care.
Essential 4: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care	• Designed, implemented, and evaluated an evidence-based project to improve the delivery of care. • Ensured patient rights of confidentiality were secured through de-identification of data.
Essential 5: Health Care Policy for Advocacy in Health Care	• Analyzed health policies and proposals from a multidisciplinary perspective and provided education and advocation to colleagues to promote ethical and just delivery of care.
Essential 6: Interprofessional Collaboration for Improving Patient and Population Health Outcomes	• Evaluated and utilized effective collaborative and communication skills to lead, develop, and implement this EBP project.
Essential 7: Clinical Prevention and Population Health for Improving the Nation's Health	• Synthesized concepts including cultural diversity in order to promote population health and address health promotion efforts.
Essential 8: Advanced Nursing Practice	• Designed, implemented, and evaluated an EBP intervention that facilitated therapeutic relationships and partnerships with patients and other professionals to ensure delivery of the best care to improve patient outcomes.

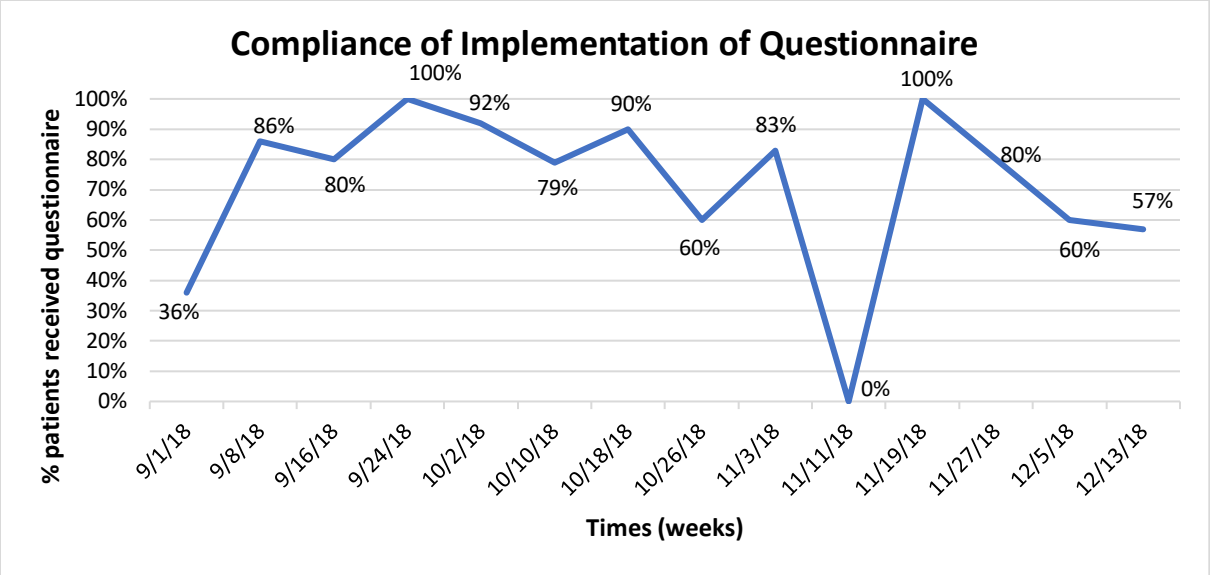
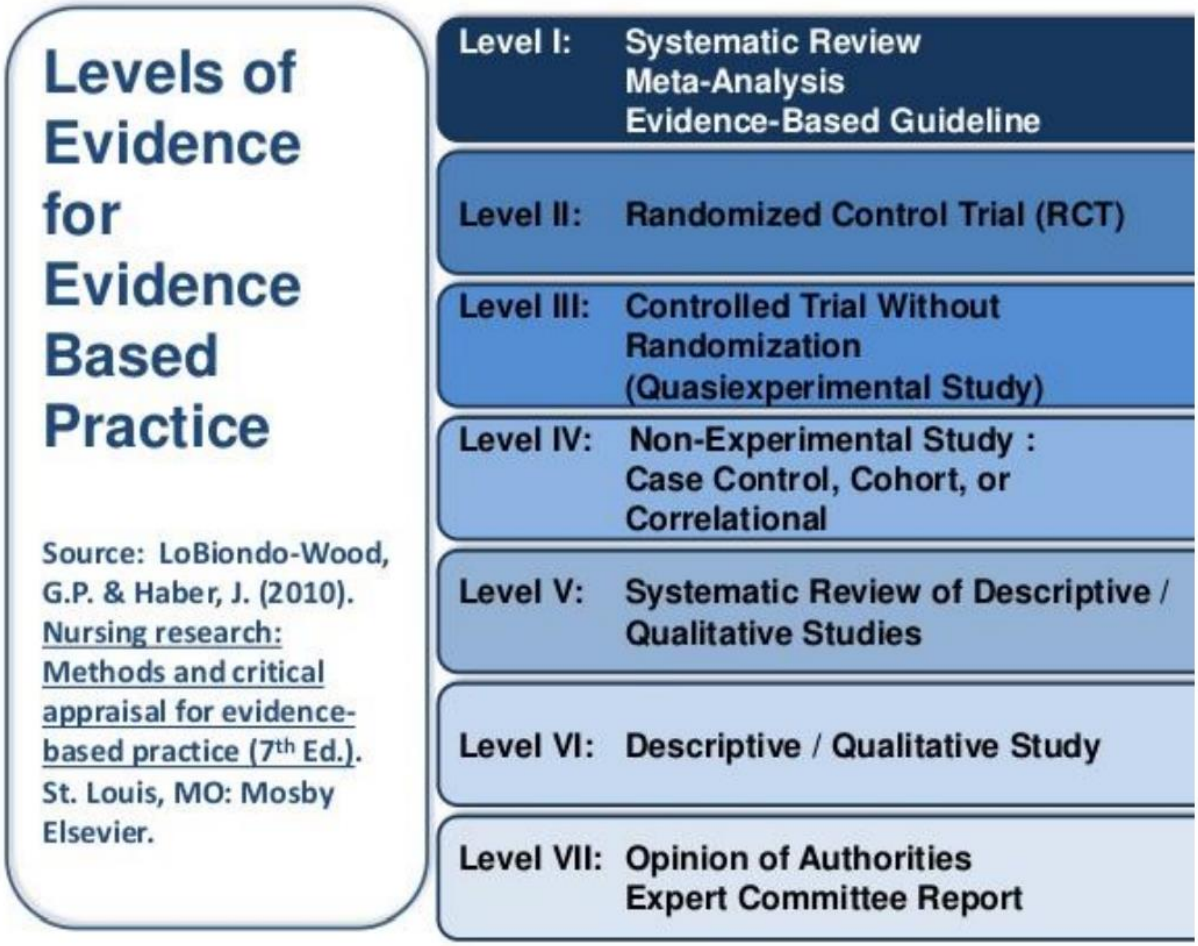


Figure 1. Run chart of compliance of questionnaire implementation representing the percentage of compliance during each week of the project.

Appendix A

Mosby's Levels of Evidence adapted from LoBiondo-Wood & Haber (2010)'s Levels



Appendix B

Number of articles reviewed, critiqued, and assigned to a level of evidence from Mosby's Level of Evidence (LoBiondo-Wood & Haber, 2010)

Level of Evidence	Study
I	Politi, Schleinitz, & Col, 2008
	Sarri, Pedder, Dias, Guo, & Lumsden, 2017
	Xu & Lang, 2014
II	Rinder, Stromme, Nordeman, Hange, Gunnarsson, & Rembeck, 2017
III	None
IV	Bromberg et al., 2010
	Gold et al., 2006
	Thurston & Joffe, 2011
	Zambotti, Colrain, Javitz, & Baker, 2014
V	Ayers, Forshaw, & Hunter, 2010
	Freeman & Sherif, 2007
VI	Anderson, 2017
	Brzyski, Medrano, Hyatt-Santos, & Ross, 2001
	Doerr-Kashani, 2015
	Grisso, Freeman, Maurin, Garcia-Espana, & Berlin, 1999
	Harlow, Crawford, Sommer, & Greendale, 2000
	Sievert, Morrison, Brown, & Reza, 2007
	Silvestrin et al., 2016
	Xu et al., 2005
VII	ACOG, 2016
Other	ACOG, 2014
	Allam et al., 2014
	Anderson, 2017
	Bacon, 2017
	Hampson & Hibbard, 1996
	Hooker, 2013
	Stuenkel et al., 2015
	The Endocrine Society: Hormone Health Network, 2017

Appendix C

Themes identified in the literature review and synthesis to support the implementation of this EBP project

Impact of Menopause on Health

Symptoms of menopause such as hot flashes, vaginal atrophy, anxiety, depression, and altered sleep patterns can impair quality of life and increase the risk for urinary tract infections, bacterial vaginosis, and yeast infections. Estrogen depletion has a direct impact on the vagina by decreasing blood flow and circulation and can lead to atrophic vaginitis. Clinically, speculum examinations can be painful or intolerable due to the loss of elasticity. The loss of estrogen can also increase the risk for health complications and disease such as cardiovascular disease, osteoporosis, and female cancers such as breast, endometrial, cervical, and ovarian cancer.

Report of Menopausal Symptoms

Symptoms associated with hormonal changes often begin during the perimenopausal period, which is the time period leading up to the complete cessation of menses for one year but may persist for years after. The most frequently reported symptoms of menopause, second to irregular menstrual cycles, are vasomotor symptoms such as hot flashes and night sweats which can interfere with activities of daily living and sleep patterns as well as contribute to anxiety and depression. Other common symptoms reported during the menopausal transition are related to vaginal changes, including dryness, itching, and dyspareunia. A national poll conducted by Lake Research Partners commissioned by The Endocrine Society found that, of 810 women aged 45 to 60 years, 70% who suffer from symptoms of menopause are not treated. (Chase, 2012)

Variation in Symptom Report of Menopause

Low socioeconomic status and low education are correlated with higher prevalence of symptom severity and symptom reporting of hot flashes. There are also cultural and ethnic variations in symptom reporting. African American women and Caucasian-American women

consistently report more severe and frequent symptoms, while women of Asian ethnicity tend to report less severe and fewer symptoms.

Clinics in Underserved Populations

Clinicians who work in rural and medically underserved populations usually provide services to patients beyond what is normally required for an annual well woman exam, including ensuring access to food, shelter, medications mental health needs, and legal services. These issues can increase the use of resources and time from the provider and clinic, resulting in a lack of education and discussion of treatment related to problematic symptoms of menopause.

Patient-Provider Interactions

Some studies have shown that there is a high prevalence of reporting of hot flash symptoms but reporting from research is not consistent with reporting of physician discussion of or management of menopausal symptoms. In a study of women experiencing menopause, only two-thirds of the women who identified symptoms of menopause reported engaging in discussion with their physician. In patient-provider interactions, there may be a disparity associated with differing perceptions of menopausal symptoms between the patient and the provider.

Education of Menopause

Research shows that women typically lack information regarding menopause. Research findings suggest that verbal discussion and education may be a barrier to patient education due to ethnic variations such as language barriers and cultural norms, and that a visual form of education may be more effective to disseminate information regarding menopause to ensure that there are no disparities, knowledge gaps, or inaccurate reporting of symptoms related to the menopausal transition.

Management of Symptoms

Clinical Practice Guidelines for the management of symptoms have been proposed by a number of organizations including the American College of Obstetrics and Gynecology, The Endocrine Society, and the North American Menopause Society. All of these guidelines stress that treatment options must be individualized and fit the patient's health profile. Selective serotonin reuptake inhibitors (SSRIs) or selective norepinephrine reuptake inhibitors (SNRIs) are recommended for the treatment of hot flashes. Topical hormone creams administered vaginally, such as Estrace cream or Premarin cream, may be considered in patients with vaginal atrophy. The use of bio-identical hormones has been linked to cancer and is no longer recommended nor prescribed by many physicians.

Quality, Quantity, and Consistency of Evidence

Due to the subjective nature of symptom reporting, primarily qualitative studies were reviewed. The publications were consistent in concluding that ethnicity, socioeconomic status, and health literacy were some of the many factors that play a role in reporting menopausal symptoms and symptom severity. Additionally, quality of life was also negatively impacted by menopausal status, with hot flashes and vaginal symptoms being the most frequently reported problems.

Because menopausal symptoms are based on self-report, limitations, weaknesses, and gaps within studies reviewed could include: inaccurate reporting, inaccurate perception of symptoms, and language barriers. One weakness that was identified was that not all participants initially recruited to the various cross-sectional studies answered the questionnaires. Another weakness was that questionnaires were not standardized across these studies. However, almost all of the studies found similar results and conclusions.

Appendix D
The Iowa Model Revised

The Iowa Model Revised. Adapted with permission from the "Iowa model of evidence-based practice: Revisions and validation" by the Iowa Model Collaborative, 2017, Worldviews on Evidence-Based Nursing, 14(3), p. 178. Copyright [2015] by the University of Iowa Hospitals and Clinics. Used/reprinted with permission from the University of Iowa Hospitals and Clinics, copyright 2015. For permission to use or reproduce, please contact the University of Iowa Hospitals and Clinics at 319-384-9098.

Appendix E

Patient Questionnaire

Name: _____ Age: _____ Ethnicity:_____

When was the first day of your last menstrual period? _____

Please circle you answers to the following questions:

1. How would you describe your menstrual cycles? Regular Irregular Absent
2. Are you currently using birth control? Yes No

   If yes, which type (pill, patch, depo injection, implant, IUD, condoms)?

   List all that apply _____
3. Are you or have you been experiencing any of the following symptoms?

   Irregular menstrual cycles Yes No I Don't Know/N/A

   Hot flashes Yes No I Don't Know/N/A

   Night sweats Yes No I Don't Know/N/A

   Elevated heart rate Yes No I Don't Know/N/A

   Sleep disturbances or insomnia Yes No I Don't Know/N/A

   Memory or concentration problems Yes No I Don't Know/N/A

   Mood changes (irritability, anxiety, or depression) Yes No I Don't Know/N/A

   Vaginal dryness/discomfort during intercourse Yes No I Don't Know/N/A

   Urinary problems Yes No I Don't Know/N/A

   Skin changes Yes No I Don't Know/N/A

If you answered YES to any of the symptoms above, please continue to question 4.
If you answered NO to the symptoms above, please skip question 4 and continue to question 5.

4. Have you missed your period for 12 straight months? Yes No I Don't Know

5. Have you ever had any of the following? Hysterectomy (surgical removal of the uterus), oophorectomy (surgical removal of the ovaries), premature ovarian failure (where the ovaries stop functioning properly before age 40) Yes No I Don't Know

If you answered YES to question 5, have you ever been diagnosed with menopause?

Yes No I Don't Know

Has it been more than 12 months since you were diagnosed with menopause?

Yes No I Don't Know

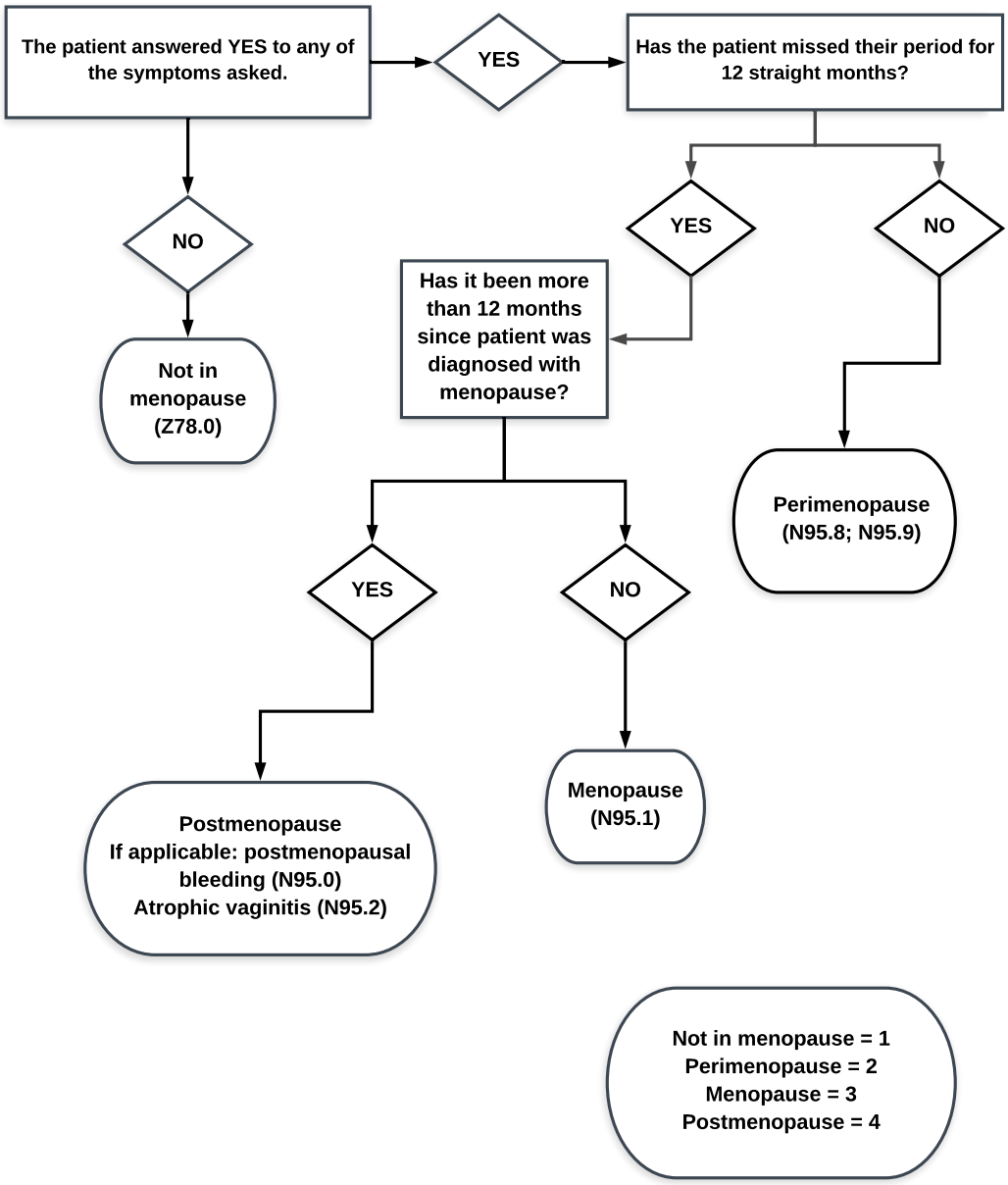
If you answered NO to question 5, have you missed your period for 12 straight months?

Yes No I Don't Know

Thank you for taking the time to answer this questionnaire. Your answers will remain confidential.

(Adapted from The Endocrine Society, 2017)

Appendix F
Menopause Algorithm



(Adapted from The Endocrine Society, 2017)

Appendix G
Gantt Chart

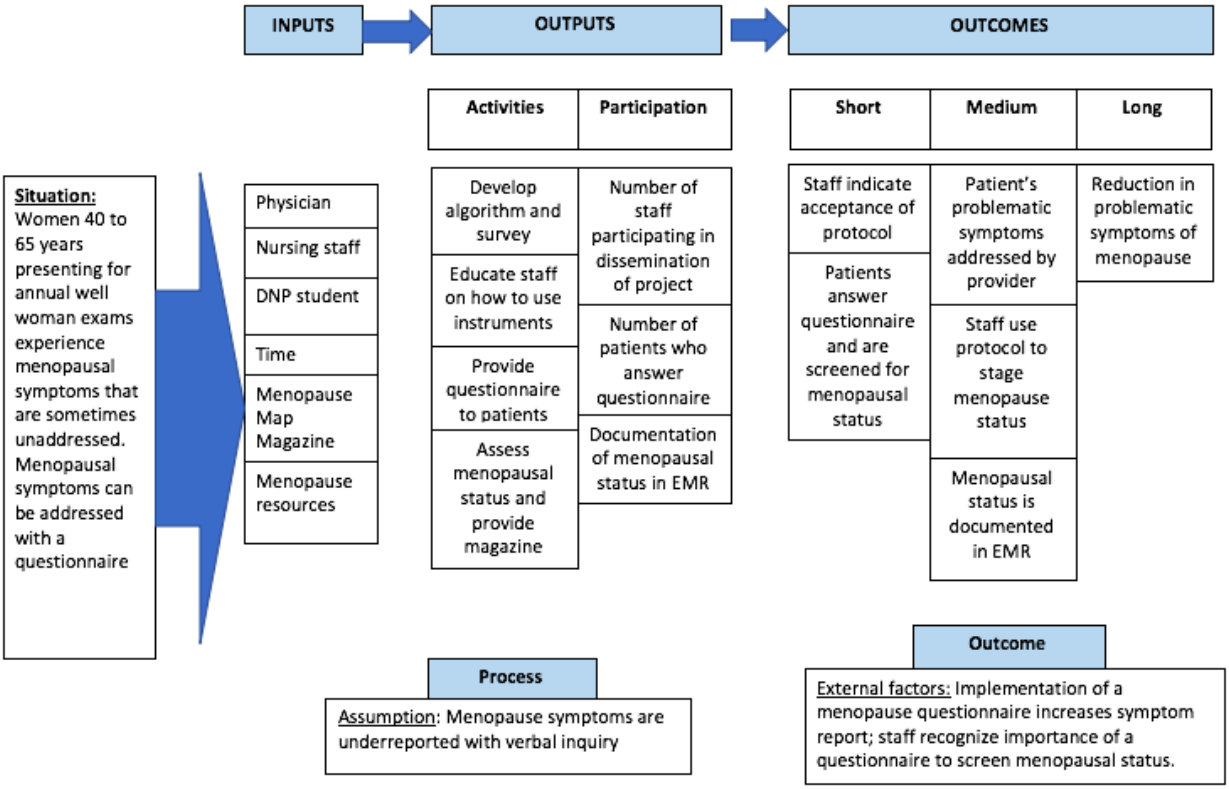
Implementation of a menopause protocol at Stellar Women's Health Specialists [SWHS]
Principle investigator: Natasha Murray

	Objectives	2018			2018			2019			2019		
	Task	June	July	August	September	October	November	December	January	February	March	April	May
1	Successful Proposal Defense												
2	Collect baseline data												
3	Create data collection instruments												
4	Brief owner/provider of SWHS												
5	Obtain approval of data collection instruments and educational tools												
6	Staff and provider education												
7	Pilot Practice Change												
8	Adapt data collection instruments												
9	Implement Practice Change												
10	Collect data												
11	Enter data												
12	Analyze data												
13	Interpret data												
14	Written and oral defense												
15	Graduation												
16	Prepare and submit dissemination products												

Completed

Projected

Appendix H
Logic Model



Appendix I

Tasks for Implementation and Evaluation

Steps	Implementation Procedure	Evaluation Method
1	Questions derived from the Endocrine Society's Menopause Map™ (The Endocrine Society: Hormone Health Network, 2017) adapted to create an algorithm and protocol to determine the patient's menopausal status.	Patient questionnaire answers and algorithm to stage: 1) Not in menopause, 2) perimenopause, 3) menopause, or 4) postmenopause (see Appendices E and F)
2	In August 2018, the staff and provider received education on the purpose, objectives, and how to use the questionnaire and algorithm created from the Endocrine Society's Menopause Map for SWHS.	See Appendix E and Appendix F
3	Project piloted from September 1st to December 31st and weekly feedback was received from the staff and providers to improve the ease and usability of the procedure.	Verbal report
4	Participants recruitment and informed consent obtained when the patient presented to the clinic and was asked to fill out a survey followed by scoring of the patient's menopausal status by a member of staff who will check the patient in and provide them with the Menopause Map™ magazine in the room.	See Appendix E and Appendix F
6	The patient was be asked to fill out a questionnaire by a staff member, who then reviewed the questionnaire to appropriately stage the patient's menopausal status.	See Appendix E and Appendix F.
7	Menopause information magazine provided to the patient and directed to the page that corresponds with the patient's menopausal status that covers symptoms, basic pathophysiology, and treatment options. Questionnaire was then given to the provider for review prior to visit.	Menopause Map Magazine, Appendix E
8	DNP student inputted staff reminders for patients fitting the criteria for the protocol in EMR the week prior.	Reminders inputted weekly into EMR, changed as appointments changed
9	Provider documented menopausal status and if an intervention was completed in the EMR	EMR chart review
10	Data collected every week.	EMR chart review
11	Data analyzed for compliance, ethnicity, and symptomatic report	Figure 1; Table 1, 2, 3, and 4

Appendix J

Objective: By the end of November 2018, 80% of women at Stellar Women's Health Specialists presenting for annual well woman examinations between 40 and 65 years will participate in an adapted form of The Endocrine Society's Menopause Map™ protocol to increase screening of symptoms of menopause.

Process Measures			
Who	**What**	**Data Collection Point**	**Instruments**
Women aged 40 to 65 presenting for annual well woman examinations	Menopause status	Weekly	Investigator-adapted tool: Questionnaire; Chart Audits
Outcome Measures			
Women aged 40 to 65 presenting for annual well woman examinations	Participation rate	Weekly	Patient questionnaire; Chart Audit